

Application No. 10/664,301

Docket No. 2002U023.US

Reply to Office Action Dated August 19, 2005 and Advisory Action of November 3, 2005

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A process of preparing an mixed catalyst system, comprising:
 - (a) combining a High MFR (I_{21}) Catalyst with an activator and a support to form an activated High MFR catalyst system; and
 - (b) combining
 - (i) a diluent comprising a mineral or silicon oil with the activated High MFR catalyst system to form a first support slurry; followed by combining a Low MFR (I_{21}) Catalyst with the first support slurry; or
 - (ii) a diluent comprising a mineral or silicon oil and a Low MFR Catalyst to the activated High MFR catalyst system;wherein the Low MFR Catalyst is combined with the activated supported High MFR Catalyst in the substantial absence of additional activator.
2. (Previously Presented) The process of Claim 1, wherein the High MFR catalyst is a cyclic bridged metallocene; the cyclic bridged metallocene characterized in that it is capable of producing polyethylene with an MFR of 50 dg/min or more when activated and is the only catalyst present in a reaction mixture that includes ethylene monomers and is subjected to a gas phase polymerization; and wherein the Low MFR catalyst is a bridged metallocene; the bridged metallocene characterized in that it is capable of producing polyethylene with an MFR of less than 50 dg/min when activated and is the only catalyst present in a reaction

Application No. 10/664,301

Docket No. 2002U023.US

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mixture that includes ethylene monomers and is subjected to a gas phase polymerization.

3. (Original) The process of claim 1, wherein the activated supported High MFR catalyst system is formed by combining the components in (a) in a first diluent having a boiling point of less than 200°C.
4. (Original) The process of Claim 3, comprising the step of removing the first diluent prior to step (b).
5. (Cancelled).
6. (Currently Amended) The process of claim 1, in which the High MFR Catalyst ~~comprises~~ consists essentially of a cyclic bridged metallocene described by the following formula:



wherein A is a divalent group bound to each of L^A and L^B ; each of L^A and L^B are bound to M, and each Q is bound to M;

L^A and L^B are independently selected from the group consisting of cyclopentadienyl ligands and ligands isolobal to cyclopentadienyl, and substituted versions thereof;

wherein A is a divalent bridging group comprising a heterocyclic ring comprising from 3 to 6 carbon atoms and one silyl or germyl group, thus forming a 4 to 7 member divalent ring;

M is a Group 4 metal; wherein n 0, 1 or 2; and

Q is a monoanionic leaving group.

Application No. 10/664,301

Docket No. 2002U023.US

Reply to Office Action Dated August 19, 2005 and Advisory Action of November 3, 2005

7. (Original) The process of claim 1, wherein the High MFR Catalyst is capable of producing polyethylene with an MFR of 40 or more when the High MFR Catalyst is the only catalyst present in a reaction mixture that includes ethylene monomers that are subjected to a gas phase polymerization in the presence of the High MFR Catalyst.
8. (Original) The process of claim 1, wherein the High MFR Catalyst is capable of producing polyethylene with an MFR of 60 or more when the High MFR Catalyst is the only catalyst present in a reaction mixture that includes ethylene monomers that are subjected to a gas phase polymerization in the presence of the High MFR Catalyst.
9. (Original) The process of claim 1, wherein the Low MFR Catalyst is a metallocene capable of producing polyethylene with an MFR of less than 45 when the Low MFR Catalyst is the only catalyst present in a reaction mixture that includes ethylene monomers that are subjected to a gas phase polymerization in the presence of the Low MFR Catalyst.
10. (Original) The process of claim 1, wherein the Low MFR Catalyst is capable of producing polyethylene with an MFR of less than 40 when the Low MFR Catalyst is the only catalyst present in a reaction mixture that includes ethylene monomers that are subjected to a gas phase polymerization in the presence of the Low MFR Catalyst.
11. (Original) The process of claim 1, wherein the Low MFR Catalyst is a metallocene capable of producing polyethylene with a melt strength (MS) of 6 or more.

Application No. 10/664,301

Docket No. 2002U023.US

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12. (Currently Amended) The process of claim 1, wherein the Low MFR Catalyst comprises consists essentially of a bridged metallocene compound described by the following formula:



where R^1 and R^2 are each bound to E, and E is bound to each of L^A and L^B ; each of L^A and L^B are bound to M, and each Q is bound to M;

L^A and L^B are independently selected from the group consisting of cyclopentadienyl ligands and ligands isolobal to cyclopentadienyl, and substituted versions thereof;

wherein the R^1R^2E group forms a divalent bridging group, wherein E is silicon or germanium; wherein R^1 and R^2 are independently selected from the group consisting of C_1 to C_5 alkyls, C_6 to C_{10} aryls, and C_7 to C_{20} alkylaryls;

M is a Group 4 metal; wherein n 0, 1 or 2; and

Q is a monoanionic leaving group.

13. (Original) The process of claim 11, wherein E is silicon.
14. (Original) The process of claim 1, wherein the activator comprises methylaluminoxane.
15. (Original) The process of claim 1, wherein the support comprises silica.
16. (Original) The process of claim 1, wherein the diluent is a blend of a mineral or silicon oil and a hydrocarbon selected from the group consisting of C_1 to C_{10} alkanes, C_6 to C_{20} aromatic hydrocarbons, C_7 to C_{21} alkyl-substituted hydrocarbons, and mixtures thereof.
17. (Original) The process of Claim 16, wherein the diluent comprises from 10 to 100 wt%, by weight of the diluent, of mineral oil.

Application No. 10/664,301

Docket No. 2002U023.US

Reply to Office Action Dated August 19, 2005 and Advisory Action of November 3, 2005

18. (Original) The process of Claim 1, wherein the molar ratio of the low MFR Catalyst metal center to high MFR Catalyst metal center ranges from 2:1 to 1:3.
19. (Original) The process of Claim 1, wherein the activated supported High MFR catalyst system and first diluent are heated from 25 to 150°C prior to combining the Low MFR Catalyst.
- 20-46. (Cancelled)